Virginia WILDLIFE

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Commission photo by Kesteloo

"My, but it's a tiresome world"

Virginia WILDLIFE

Published by VIRGINIA COMMISSION OF GAME AND INLAND FISHERIES, Richmond 13, Virginia

A Monthly Magazine Dedicated to the Conservation, Restoration, and Wise Use of Virginia's Wildlife and Related Natural Resources, and to the Betterment of Hunting and Fishing in Virginia

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Cover

With eyes skyward, a Canada goose stands for a moment, pausing before the long northbound trip home

U. S. F. S. photo by R. G. Schmidt

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The Magic of Spring

IF ANYONE were to ask me to name my favorite season, I would have to give the majority opinion —spring!

Why should this be? Why is springtime such a favorite period of the year with so many of us? Why the fuss over spring?

Leigh Hunt, that great humanitarian and writer, probably came close to the answer when he said that spring is a time when the golden line is drawn between winter and summer. Behind all is blackness and darkness and dissolution. Before is hope, soft airs, flowers, and the sweet season of hay; and people will cross the fields, reading or walking with one another; and instead of the rain that soaks death into the heart of green things, there is rain which they drink with delight; and there will be sleep on the grass at midday, and early rising in the morning, and long moonlight evenings.

Spring is an outdoor season through and through. Everything that is spring smacks of the outdoors: forsythias in yellow flame, the fresh green synthesis of spring onions, the wayward call of a female red fox in the timber, the chirpings of newly arrived robins. Take any meadow, any wood, take any orchard or garden in the spring and what do you find? The same awakening, the same outdoor reverie, the same bucolic air of a season reborn, rushed and pushed and driven by a spirit far too big for us to see, much less to comprehend.

Yes, spring is mostly an outdoor spectacle—and that is why it is so close to man's heart, and good for him. God willed that there be spring and that its coming would bring to mankind love, beauty, goodness, excitement, adventure.

Spring starts officially on March 21 with the vernal equinox. Astronomically speaking, this means that the longitude of the sun is exactly zero in the Northern Hemisphere, or to put it differently, the moment when the sun enters the zodiacal sign of Aries. Thereafter the sun leaves the celestial equator and continues along the ecliptic north of the equator giving us warmer and warmer days until the start of the summer solstice on June 21. At this point the sun is as far north as it will go and will gradually start moving south again.

Many ask, why then do we have our hottest days in July and August if the sun is moving southward again? The answer lies in the warming effects of the sun upon the earth. Our planet is slow to warm up after the long winter, and, just as the heat of a summer day reaches its peak in the afternoon, the warming of the earth is delayed until after the June 21 solstice.

Spring then, is closely associated with the path of the sun and thus with temperature. Temperature, on the other hand, speeds up or slows down life and all its processes. In the spring all life is accelerated and so the great drama of the earth unfolds.

The drama that comes with spring is indeed one of the great spectacles of all creation, a miracle so awe-inspiring in beauty and glory that it really makes life worth while—even for the most saddened. Longfellow, however, said that to most men only the cessation of the miracle would be miraculous, and the perpetual exercise of God's power seems less wonderful than its withdrawal.

The lengthening of spring sunshine and warmer days start a chain reaction in the plant and animal world. Farmers know this well. Cells of plants begin to multiply with amazing rapidity and germination and growth start quickly. Planting time is at hand. It is time, too, to begin thinking of new generations of farm animals—chicks and calves and lambs and piglets. Longer days and more sunshine stimulate food production in plant life through the miracle of photosynthesis in the living green cell. Nature is ready for production and man is once again given promise of its great bounty.

To the conservationist, spring is the season of rebuilding, of restoration, rehabilitation. To the forester it is germination of tree seed and tree planting; to the wildlifer it is the renewed energies directed toward habitat improvement; to the soil scientist, the carpeting of washed gullies and denuded hillsides and better land use; to the botanist, naturalist, zoologist, ornithologist—and the fisherman—hiking, studying, watching, romping over the fields, wading streams, gay pastimes. Spring is the great mysterious door to a fresh, wholesome, exciting outdoor world.

—J.J.S.

Commission photo by Kesteloo

WHY FISH???

By R. W. ESCHMEYER

Executive Vice-President
Sport Fishing Institute

IF WE were to ask the twenty million American anglers why fishing is their favorite outdoor pastime, we would get a variety of answers. A majority would probably indicate that they fish to relax . . . to "Get away from it all." That's quite a change from the answer we would have received a hundred years ago. In the early days people fished for one purpose only. They fished to get fresh meat for the table.

Meat is available now, but today fishing is even more important than it was in pioneer days. The shift in our mode of living has been an extreme one. In the early days there was a tendency toward too much physical exertion, but today our problem is one of trying to avoid nervous exhaustion. Doctors tell us that mental ailments, heart disease, and gastric troubles are on the increase. We are living too fast.

Angling today is a tonic for frayed nerves. The fellow who can forget his troubles every now and then by going fishing can expect to have better perspective. He may be expected to think on a more even keel. He will be a little easier to live with, and he might even lengthen his life span a bit.

"Getting away from it all" for a relaxing day fishing is the angler's tonic for frayed nerves and short tempers

S. C. S. photo

Fishing is an important nerve tonic. We go fishing to relax. But we go fishing for another purpose too . . . we want to catch fish. If angling success becomes unsatisfactory, most people will lose interest in this most popular of all outdoor recreational activities.

In some areas fishing has become unsatisfactory. The national average has probably dropped to a catch of less than one fish per hour, and the average fish caught today has a length of less than 10 inches.

There are a number of reasons for this decline in the average catch. Siltation and pollution have spoiled the fish habitat in many of our streams. Selective harvesting of certain species of fish has operated to the advantage of the less desirable species. Too, some waters which are producing as many fish as ever furnish unsatisfactory fishing because now the available crop is divided among too many anglers.

Fishing pressure has been increasing greatly each year. Some of the fish habitat has been destroyed. The problem of furnishing satisfactory fishing for the growing army of anglers is not an easy one to solve. But the fish conservationists are nearing a solution. There may be an improvement in the average catch in some states within the next decade.

Fish conservation is undergoing a rapid change. A few decades ago it consisted mainly of semi-indiscriminate stocking with small fish and the passing of arbitrarily made regulations. Today, in a number of states, it has become a complicated science.

Like stocking and the other fish management tools, regulation of the fishing has been undergoing a rather drastic change.

In the past, our tendency has been to increase the number and kind of regulations each time fishing declined. In addition, we increased the enforcement staff. For some reason or other we spent very little time in trying to learn what laws were really needed, and to learn whether or not the regulations in effect were really helpful.

Now the fact-finders are learning that some of the regulations were helpful and others were actually harmful. They are finding that our tendency has been to overregulate in many instances.

So, today, we tend to have a big variety of regulations in the books. Some are desirable, while others are of questionable value. It has been said that in some states you need a lawyer to find out what is, and what is not, permissible in the way of angling.

Fishermen will be relieved to learn that the trend now is toward fewer regulations. Those which are of doubtful value are gradually being discarded or changed as fact-finding programs demonstrate that they are not beneficial to fishing.

Our concepts on enforcement are changing, too. In the more advanced states, the trend is toward educating the public, less toward judging progress by the number of arrests made.

Of course, we do need regulations, and we must obey them. Regulating the catch is an important part of fish conservation. Anglers who want to help "shorten the time between bites" can help the cause not only by obeying the regulations but also by insisting that a part of their license fee be used to learn what regulations are really needed, through sound fact-finding programs.

The long list of regulations wouldn't have been a burden in horse-and-buggy days when most people fished only in their back yards. But they do present a problem today when an angler fishes on a variety of waters and may spend his time angling on the lakes and streams of a number of states.

Although relaxation is uppermost among our fishing objectives, we still go fishing to catch fish

Commission photo by Kesteloo

Now that fact-finding programs have been initiated in many of the states, and now that the fish conservationists are becoming more skilled in using their management tools, we can expect fewer and better regulations. Too, because of the improvement in the fish conservation field, we can expect an improvement in the average catch.

It seems to be normal procedure to do little or nothing about a natural resource while it is plentiful. We begin to show concern only when the resource declines. We did very little to preserve fish supplies while the catch was satisfactory. It has declined to where both anglers and fisheries workers are showing increasing concern. That is a prerequisite to restoring the resources. Fish are prolific. Given a good environment and proper management, the numbers of desirable fish may be expected to increase greatly in a very few years. Indications are that things are "looking up" with respect to our favorite outdoor recreation. It's quite possible that we're over the hump . . . that the time between bites gradually will be shortened to where the average fishing trip will give us both relaxation and a mess of fish.

Conservation Quotes

Every sizable pine and oak, or other forest tree, cut down within the memory of man! As if individual speculators were to be allowed to export the clouds out of the sky, or the stars out of the firmament, one by one. We shall be reduced to gnaw the very crust of the earth for nutriment.

—Henry David Thoreau

He who knows what sweets and virtues are in the ground, the waters, the plants, the heavens, and how to come at these enchantments, is the rich and royal man.

—Ralph Waldo Emerson

The Nation behaves well if it treats the natural resources as assets which it must turn over to the next generation increased; and not impaired in value.

—Theodore Roosevelt

A nation deprived of liberty may win it, a nation divided may reunite, but a nation whose national resources are destroyed must inevitably pay the penalty of poverty, degradation and decay.

—Gifford Pinchot

The strength of our nation is due to the continent of North America. It has molded us, nourished us, fed its abundant vitality into our veins. We are its children, lost and homeless without its strong arms about us. Shall we destroy it?

—Stuart Chase

What is the

FATE OF OUR FALL QUAIL COVEYS?

By JULIAN C. HARVEY

Game Technician

WHAT is happening to our fall and winter coveys? Why is it that during some of our supposedly good years for quail we have so many small coveys and such poor shooting?

For years, we assumed that protection from hunters and destruction of predators on an area would automatically result in an increased number of quail. For example, the farmer seeking to raise game on his lands assumed without question that posting his property would insure an abundance of game. Most observant landowners saw this theory explode when game did not increase, and in many instances, coveys dwindled. Surprisingly, many unobservant landowners still believe that posting is the answer to quail abundance.

In this article the story of quail survival is presented in condensed form so that the reader may draw his own conclusions. It would be well to mention that similar studies as herein described were also done by such well known biologists as Errington, Stoddard, Leopold and others, and they have produced similar and, in some instances, identical information.

Seven years of continual field studies on the Virginia Polytechnic Institute Farms furnish strong evidence that the carrying capacity of individual covey ranges limits the number of birds that can survive the winter. Studies at V. P. I. show that the ranges of four out of five coveys, from one season to the next, show definite carrying capacities for the individual territories.

"Winter carrying capacity" as used here refers to the maximum number of quail that an area can support until spring. In other words, carrying capacity denotes the maximum survival for a fall and winter population. But it does not assure maximum survival.

Various emergencies, such as sustained periods of ice and snow, excessive shooting, or disease may reduce the population below the normal carrying capacity.

Winter carrying capacity of a quail environment is probably most logically explained in the manner used by Paul Errington, when he compared a covey range with a farm chicken coop. A chicken coop can accommodate only so many birds. If a poultryman has more chickens than his coop can hold, obviously, he cannot get them all

in. Unless he builds another coop or disposes of this surplus, some must remain outside. If the extra chickens leave the premises and find security in some other poultryman's coop, it may make little difference to them. But if this surplus cannot find refuge, they will become exposed to the elements of nature or to someone looking for a chicken to fill an empty pot. Losses will occur and probably continue until all of the chickens are killed or are driven away.

It is true that a quail covey range does not have boundaries as easily defined as those of a chicken coop, but the principle is the same. A quail covey range has a combination of food and cover sources and escape routes suitable for almost a constant number of birds. Just as chicken coops are built in different sizes, so are covey ranges.

The carrying capacities for the ranges on the V. P. I. study area were first derived from a year to year analysis of the overwinter survival figures. When no more than a certain number of quail succeeded in surviving the winter on a particular covey range, then that number was taken to be the carrying capacity for that one covey range. If carrying capacity for a large number of ranges was known, then it was possible to figure rather accurately the carrying capacity for the entire area. For instance, our records show that one covey range showed a carrying capacity of 17, 15, 17, and 14 quail for four consecutive years. Other ranges show similar figures. On the basis of information now collected, there are indications that the upper limit of the carrying capacity for a covey range is in reality practically a fixed number. One must take into consideration, of course, that land-use practices or even the succession of plants can heavily increase or decrease this upper limit. With the modern trend in agricultural practices, this change in carrying capacity limits is usually in the form of a decrease.

What then is the value of knowing the carrying capacity of a covey range? Simply this, it would seem to make little difference how many extra birds station themselves in a territory. Only a certain number will succeed in surviving the winter, varying with the individual territory. Citing many examples to illustrate the effect of carrying capacity on the fate of surplus quail is not necessary, other than to say that these surplus birds must move out or be lost. Whole coveys are frequently lost when they can find no suitable place to stay and are forced to inhabit poor or uninhabitable ranges.

Quail exhibit strong family ties but are intolerant to crowding. This intolerance is exemplified by the numerous instances of one covey avoiding another's range. Often, in the best quail territory, covey ranges will overlap slightly, but generally speaking, this is the exception rather than the rule.

During some mild winters, a larger than average number of quail carry over the winter. The spring and summer are favorable to quail nesting and we immediately visualize two coveys in every field, where only one was found the previous fall. Spirits are high and hunting prospects good, when in late September and early October, coveys are found where there were none in preceding years. But as October slips by and we continue to visit the area, we note that the new coveys are decreasing and more often than not, loss is heavy. By November and the first days of the hunting season, many of these coveys have completely disappeared or are too low in number to harvest safely. We still have our old standbys, the coveys we hunt successfully season after season. Spirits are down and heads shake in amazement. They were there early in the fall, but for some unknown reason the birds are gone.

What is the fate of these birds? Here again is the principle of carrying capacity applied to a large area. The old standby coveys have occupied the covey ranges of superior quality, while the new coveys have been forced to inhabit poor or possibly uninhabitable ranges that could suppport only three or four birds, or in many instances, none. Actually, the birds inhabiting poor ranges were surplus, and as such were forced to move or be lost to one of the many decimating factors. Quite often coveys are baited into areas that possess an excellent food supply, but its weakness lay in the lack of cover.

Basically, there are three conditions under which natural quail populations inhabit any area.

First, the population within the carrying capacity of the area fills up the best quail environment. It is subject to a low fall or winter loss rate as long as it occupies only the best environment, assuming, of course, that the population is healthy. The loss rate as our data indicates is usually the natural expected mortality.

Secondly, there is a surplus of birds indicating a so-called "good quail year," in which inferior types of environment are occupied by the overflow. This surplus bears the brunt of the pressure in population losses. There tends to be some crowding in superior quail territories, but this takes place at a surprisingly small degree. Coveys occupying superior ranges remain comparatively safe, except in instances where the carrying capacity is exceeded.

The final condition is characterized by coveys which cannot or do not crowd into occupied ranges. These birds either wander from one inferior range to another or inhabit areas which will not support them. Wandering coveys may occasionally discover habitable areas outside of their accepted ranges. However, their chances of survival are poor because of crowded conditions on adjacent areas. Usually, we may be fairly safe in assuming that wandering or badly located coveys, or excess birds generally, are doomed before spring.

How then do we apply these principles to the covey on the hill behind the house? First, there are three essential factors that compose any quail covey range—food, cover, and escape routes. These three essential factors are almost without exception composed of four cover types: woods, brush, grassland and cultivation. In special cases, however, one, two, or even three of these types may be dispensed with, provided the remainder be of the right kind and in sufficient quantity. It should be pointed out that in these special cases

(*Continued on page 22*)

WILD GEESE IN HIS OWN FRONT YARD

By DAN O. NICHOLS, M.D.

Photos by Brenda Nichols

Mr. Carl Nolting, whose unusual "front yard" of wild Canadian geese has attracted the interest and attention of thousands during the last few years, served as a member of the Virginia Commission of Game and Inland Fisheries from 1929 to 1933, at which time he was appointed Chairman. He held that position until 1942. Later he returned to his Louisa County farm and began the hobby of trying to get wild Canada geese to breed and nest on his pond. You will find—as you read the story—his project has been quite a success.—ED.

THE LAST patient was a big strapping fellow named Bill from over in the valley. I've known Bill all my life and, aside from a few minor accidents that anyone who leads an outdoor life is liable to have, Bill had never been to my office for treatment of any serious ailment. On this day, Bill had come in because he was "feelin' a mite seedy." I didn't tell him what I thought the reason might be, but merely suggested he cut down a little on all his activities—because, you see, Bill is in his eighty-seventh year.

When someone asked him how he'd managed to stay so well and healthy all these years, Bill had said it was due to a sort of formula of living he'd worked out when he was a young man, and he'd followed it all his life: "Spend a quarter of my time huntin', another quarter fishin', one quarter eatin' and sleepin', and what's left—drinkin'."

"You've always been interested in game birds—what do you think of these, Bill?" I said as I handed him a few photographs I'd taken recently. They were pictures, close-ups too, of wild Canada geese.

"Wild geese!" said Bill excitedly, looking at the first picture. "Say, Doc, these are mighty good—must've done some stalkin' to get close enough to snap 'em." He glanced up suddenly with an inquiring expression. "Where'd you take 'em—up in Canada when you were there on your vacation?"

"No, Bill—I took these pictures here in Virginia and, what's more, we could drive there from Charlottesville in less than 30 minutes."

"You aren't pulling my leg, Doc?" said Bill, glancing back at one of the pictures. "Oh, I get it—some guy's got a fenced-in place and they've all had their wings clipped."

"No—they can fly away any time they wish. They live on an open lake and—well, they just seem to like it there."

"Say, Doc, this's kinda hard for me to swallow 'thout even chewing it up—but I always was a sucker, so I don't mind bitin' once more, even if you do get the laugh on me." He slapped the knee which he had hurt many years ago and which he told his wife always hurt him unless he had just a little liquor every day. "So, shoot away! Let's hear how these Canadian geese—and there ain't nobody can fool me about that—come to have taken up residence down here."

"There's no twist to it, Bill, I promise you. But you're right about there being a story connected with them. . . Here's how it all started. Many years ago, Mr. Carl H. Nolting, who lives up in Louisa County, happened to be interested in waterfowl, especially geese. At that time the federal law prohibiting the use of live decoys was passed and the Commission of Game and Inland Fisheries boys had some wild geese on hand. Mr. Nolting decided to take a pair home, clip their wings, and see if they'd breed. You see, Mr. Nolting has an 18-acre lake on his big farm and he figured it was an ideal place for raising geese. Evidently, the geese didn't think so, at least not right away, and nothing happened for—I think it was about 10 years. Anyway, five years ago they started nesting and raising their young and, as you can guess, it's a little hard to count a flock of wild geese, but from all they can figure there are about 100 in the flock right now."

"Whew!" said Bill excitedly. "Just a second, Doc, how about spring and fall when wild geese are flying over these parts—don't they ever come down to Mr. Nolting's lake?"

"Very frequently."

"Then why don't these birds here," he tapped the picture, "go on off with them?"

"The only reason Mr. Nolting can figure out is that they like it at his place. He treats them pretty well, grows wheat and barley near the farm, and he doesn't allow anyone to shoot them, and they graze the wheat fields for several miles around the neighborhood. He only feeds them when the ground is covered with snow

Carl Nolting, former chairman of the Virginia Commission of Game and Inland Fisheries, relaxing on his farm in Louisa County, where he enjoys watching his pet flock of geese on the pond nearby

Five years ago the geese on Nolting's pond began breeding and raising young

and the pond is frozen over and then he feeds them shelled corn. They come when called. You know, Bill, he told me his flock will sometimes go up with the migratory birds and maybe fly off several miles, but they always come back."

"This beats anything I ever heard!" said Bill. "Wait'll I get back over in the valley and tell some of the boys!" he laughed. "I'd best borrow some of your photographs or they're liable to call me a liar right to my face, and I ain't ever stood for that even when I was exaggerating just a little bit." I've heard Bill tell some yarns about fish that "got away" and I know just what he meant.

"The most amazing thing happened at Nolting's place a year or two back," I said. "A stray cripple came in and landed. It tried and tried to get off the water but it just couldn't make it. Mr. Nolting's manager went out in a rowboat to try and catch this wounded bird. Just as he got close to him, two migrating wild geese flew down, landed, swam up beside the cripple, spread their wings out sort of underneath him and then took off with the helpless bird between them."

"Say! I heard something like that over the radio not long ago about one of our pilots in Korea who was in a bad way and a couple of his buddies came along stuck the wings of their planes under his and flew along home with him."

Bill didn't say anything for several moments. He just studied each photo again. Suddenly, he looked up and shaking his head characteristically, exclaimed: "I'd give my eye teeth if I could get a pair of these geese and see if they'd breed on my farm. You remember—there's a great big pond there, not as big as this one," he waved at the pictures, "but it's right good size—maybe 14 or 15 acres anyway. You don't know where I could get a pair, do you?"

"If he knew you were going to keep them like he does, and not kill them, I've a hunch Mr. Nolting might let you have a pair."

I haven't seen Bill since, but I'd be willing to bet that Mr. Nolting's flock is smaller by at least two geese at this very minute. Bill's a pretty persuasive talker and when he left my office he was driving right down to talk to Mr. Nolting.

THE BEHAVIOR OF LAKES

By ROBERTS MANN and DAVID H. THOMPSON*

Commission photo by Kesteloo

IN MANY WAYS lakes are like living things—especially a tree. A lake breathes and has a circulation; it is warmed and fed; it harbors many other living things; and in cold weather it goes into a winter sleep. If it were not for the special character of a body of standing water which we call a lake, the things that live in it would be radically different or, perhaps, not exist at all.

Water is a very strange substance in many ways. For example, it is remarkable because it expands, becomes lighter and floats when it freezes into ice. If, like most other substances, water shrank when it changed from a liquid to a solid, it would sink. Then, ponds and lakes would freeze from the bottom up and become solid blocks of ice. This would make life impossible for most kinds of aquatic plants and animals and indirectly affect all living things. Further, water is a poor conductor of heat—otherwise lakes would freeze much deeper and, again most living things in it would perish.

As warm water cools it shrinks and becomes more dense and heavy until about 39 degrees Fahrenheit. Then, as the temperature drops toward the freezing point, it starts to expand and become lighter. That trait of having its maximum density about 7 degrees above the freezing point has important consequences for the things that get their oxygen from water. It causes a complete circulation or overturn at least twice each year—in spring and again in autumn—like deep breaths carrying oxygen-rich water to all parts of the lake from top to bottom.

When a pond or lake is covered with ice, all the water beneath it is at or near 32 degrees Fahrenheit, and without movement, as if it were holding its breath and hibernating until spring. Its main chance of getting fresh oxygen is from winter rains or melting snows which bring in oxygen-rich water. There is one other possibility. By a process called photosynthesis, green aquatic plants, with the aid of sunlight, produce pure oxygen—even under a layer of clear ice. But if the ice is blanketed with snow, and if there are no rains or melting snows, the oxygen dissolved in the water is slowly exhausted and the fish, then many other forms of life, begin to smother and die.

In spring, after the ice melts and the surface water warms toward 39 degrees, it sinks and pushes the oxygen-starved bottom water up to the surface. At this time, winds may also cause circulation in the entire lake. Later, as the surface water becomes warmer and lighter, only the upper layer is circulated by moderate winds pushing water toward one shore or the other. The colder bottom layer is left undisturbed unless there is the complete turnover, from top to bottom, that sometimes occurs as the result of a violent storm. In the cleaner, deeper lakes without too much rotting vegetation there is enough oxygen in the bottom layer to last through the summer. In others it is used up, so that the fish and other animals are forced up to the surface to avoid suffocation. In July, a cage of minnows may live well at depths of 5, 10 or 15 feet but die within a few minutes when lowered to 20 feet and all greater depths. The circulation or overturn in a lake is important only to the animals that breathe by means of gills. For some reason, a few forms of life such as certain worms, insect larvae and single-celled animals can live a long time without oxygen.

With the coming of chilly nights in autumn, the surface water cools and sinks again, forcing up the bottom water. Then, with the temperature near 39 degrees, winds cause the entire body of water to circulate and our lake gets its second long breath before it freezes over and goes into its long winter sleep.

* The authors of this short story on lakes, Roberts Mann and David H. Thompson, are superintendent of conservation and senior naturalist, respectively, of the Forest Preserve District of Cook County, adjoining Chicago.

VIRGINIA WILDLIFE

CONSERVATIONGRAM

Late Wildlife News . . . At A Glance

LYNCHBURG IWLA CHAPTER 4TH LARGEST IN NATION: The Lynchburg Chapter of the Izaak Walton League of America concluded 1952 with a total of 870 members, ranking it fourth largest in the nation, retired President M. L. Glover, reports.
Glover said that the chapter has begun a big project for 1953, directed at industrial pollution abatement in the Upper James River above Lynchburg.

ATLANTIC WATERFOWL COUNCIL MEETS: The Atlantic Waterfowl Council convened in Richmond on January 29 and 30.
The Council discussed the waterfowl situation and outlined methods for procuring greater development of waterfowl nesting and feeding grounds along the Atlantic Flyway.
The Council is comprised of representatives of game and fish departments of all Atlantic Coast states and federal authorities. The two-day conference brought to Richmond approximately 75 waterfowl specialists.

AVERAGE OF TWO HOURS OF FISHING PER FISH REQUIRED: Studies made during the past year at state lakes and impoundments show that it required two hours of fishing for each fish caught.
Of the lakes and impoundments studied, Fairystone Lake in Patrick County, ranked first, providing an average catch of one fish every hour and 15 minutes, but small in size and crappie predominated the take.
The new South Holston Reservoir in Washington County lived up to the Commission's pre-season expectations by providing fishermen one fish for every hour and 25 minutes fished. It likewise shared with Back Bay the honor of affording the best all-'round fishing for size and quantity of fish in the state. Fishermen may be interested to know that the most fish were caught in the months of May, June, and October, with the artificial lure specialists making the biggest and best catches.

NEWLY FORMED VIRGINIA WILDLIFE FEDERATION MEETS IN RICHMOND: The first board meeting of the Virginia Wildlife Federation was held in the Byrd Room at the Hotel John Marshall, Richmond, January 25, 1953.
Among the guests attending the initial meeting were A. H. Paessler of the Water Control Board; and George W. Dean, state forester. Each of these conservation officers discussed ways in which the newly formed Federation might co-operate with their respective agencies in natural resource conservation.
The Virginia Wildlife Federation, which will be affiliated with the National Wildlife Federation, is constituted to provide for the active support of every phase of wildlife, stream, forest and soil conservation and restoration programs. An Executive Committee and various other committees were appointed at this meeting to set up the machinery to accomplish these objectives.

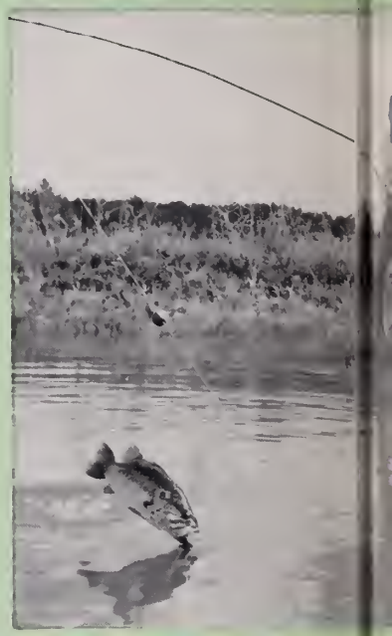
WASHINGTON, D. C., SITE OF NORTH AMERICAN WILDLIFE CONFERENCE, MARCH 9, 10, 11: For the first time in several years, Virginians interested in the conservation of game and fish will be able to attend the North American Wildlife Conference without traveling far.
The 18th Annual North American Wildlife Conference is to be held in Washington, D. C., in the Hotel Statler beginning March 9, 1953, and ending March 11. The Conference program is being formulated around the central theme: "Natural Resources and Human Needs."

No phase of conservation and restoration of natural resources has been omitted from the broad program, which will include discussions by international leaders and qualified experts on subjects ranging from the basic resources of soil and water to the management of their ultimate living products. Heading up the technical session Wednesday morning, March 11, on Conservation Education will be J. J. Shomon, chief of the Commission of Game and Inland Fisheries' education division.
Never before in history has a greater need existed for a definite evaluation of our present and future policies toward the natural assets. Virginians are encouraged to attend.

fishing areas---

From the Tidewate

Back Bay offers some of the finest largemouth bass fishing on the entire Atlantic Seaboard. Spring fishing is best. The Bay has no closed season on bass



Virginia's farm and mill ponds are increasing yearly and so are the delights of an ever-growing fraternity of anglers

Picturesque semi-tropical water is Lake Drummond, deep in the heart of the great Dismal Swamp. The Lake abounds in black crappie, fliers, and catfish

Fabulous is the term denoting much of the fishing in the James River. This mighty eastern river is particularly famous for its smallmouth bass fishing, but you must know the river and exactly where to go

Without question one of the finest public fishing spots near Richmond is Chickahominy Lake. This vast cypress-fringed reservoir lake furnishes sport to a vast throng of city and country folk each year

to the Mountains

Fishing in the Old Dominion is not restricted to any one section, or area. From the brackish waters of the Tidewater to the rugged western mountains, Virginia anglers are enchanted by the variety of fishing waters and scenery. Famous tidal estuaries, historic mill ponds, reservoirs, artificial lakes, and fast-running mountain streams are among the beautiful waters that attract sport fishermen. Numerous parks and vast forest areas are studded with natural fishing spots. Virginia's thousands of newly created farm ponds also add to Virginia's fishing opportunities. Thousands of miles of trout streams west of the Blue Ridge harbor some of the finest brook and rainbow trout east of the Mississippi. Virginia is truly a sportsmen's state and interest in sport fishing is steadily growing.

The Old Dominion sports more thon 150 trout streams—most of them heovily stocked from the hotcheries of the Stote Game Commission ond the U. S. Fish and Wildlife Service. Trout seoson opens May 1.

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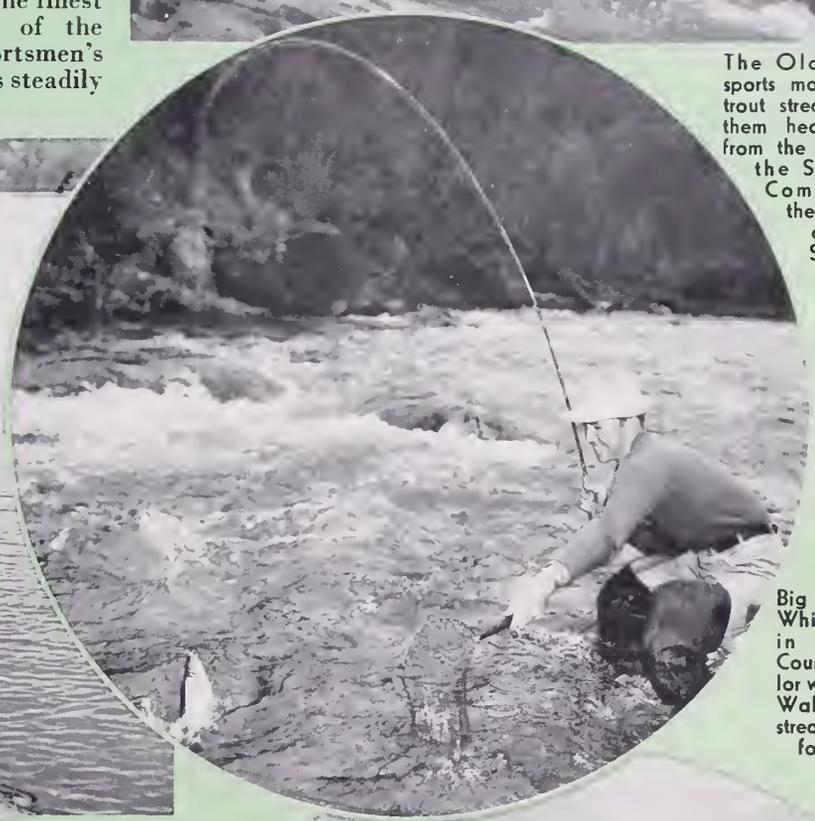


Big streams like White Top Laurel in Washington County are popular with modern Ike Waltonians. This stream is noted for large trout

ew rivers in northern Virginia con compare to the henondoah for smallmouths. Once bodly polluted, the river now supports fish life once more

New reservoirs like Holston Loke ore odding vast acreage of fishing woters.

Story of Mrs. A. C. Cox---

WOMAN LOOKOUT

By FLORENCE S. McDANIEL

Commission photos by Kesteloo

A COLD, blustery north wind whistled somberly across Fishers Peak, harshly striking the 60-foot lookout tower. In the glass room atop the steel structure, a clear-eyed woman scanned the horizon searchingly. Suddenly, she tensed.

Off to the south, across the Virginia-North Carolina border, a tiny spiral of smoke wafted on the horizon. Mrs. Arthur C. Cox of Grayson County, alert Virginia State Forest Service employee, calmly prepared for action. After sighting the fire with her alidade and pinpointing it on the map, she telephoned the local fire warden. Within minutes, a crew of trained fire fighters was dispatched to the scene. But Mrs. Cox's job was not finished. She diligently scanned the surrounding area for signs of fire in another spot. She continued her vigil until a call came from the fire warden. "All clear, Mrs. Cox. Another brush fire is under control," reported the warden.

Once again a disastrous forest fire had been prevented. Yes, Mrs. Cox was in Virginia, but through state reciprocal agreements, she had saved the state of North Carolina from more wanton fire destruction of valuable timber land.

Some time after this routine incident in the life of a fire spotter, I met Mrs. Cox and she invited me to spend the day with her in the tower. I accepted gladly.

Early one morning, we set out in a jeep from her farm home, some eight miles from the tower on Fishers Peak. As we drove up the lonely, narrow gravel road, Mrs. Cox chatted informatively about her interesting job. One of 35 women forest service employees who man fire towers, Mrs. Cox told me about the two seasons in the year during which she drops her household tasks and ascends the stairway to one of the more isolated towers in the state. Each morning at 8, from October 15 to December 24, and from March 1 to May 15, she climbs into her jeep and heads for the tower, some 3700 towering feet above Grayson and Carroll Counties on the North Carolina border. There she stays until 6 P.M., watching the horizon for the first wisp of smoke that may mean a small trash fire or the tragedy of a large forest conflagration. During these same hours, fire towers all over the state are manned by other alert forest service employees.

Mrs. Cox's small daughter, Betty, accompanied us, chatting merrily as we wound our way up the rutted road. Mrs. Cox pointed out colorful galax leaves, protruding dark heads through the mass of fallen dry leaves on the mountain side. "Beautiful, aren't they," she said. "But dangerous, too. A cigarette thrown carelessly among them could turn this whole mountain into a blazing inferno." I surreptitiously crushed my cigarette in the ashtray. A sudden squeal from Betty shattered the stillness. "Mommie, Mrs. Mac, look over there. See the goats?" As the child spoke, a herd of wild goats heard the chug-chug of the jeep's motor. Glancing up warily, they stood posed for an instant, then plunged recklessly down the mountain, bleating shrilly at us for intruding upon their domain.

Still laughing at the antics of the goats, we drew up within a few feet of the mountain top. We piled out of the jeep, and headed toward the tower, rising starkly into the sky. Nestled against the base of the tower was a small cabin equipped with a cot, stove, a few utensils, and emergency food. In this cabin, Mrs. Cox prepares her lunch, and occasionally spends the night when the road down the mountain becomes impassable.

From the base of the tower, a stairway led up 60 feet to a glass enclosed observation room. With Betty leading the way, we began the long climb. When we reached the padlocked trap door, Mrs. Cox reached over Betty's head and unlocked it. I, a bit breathless, entered the small room.

Equipped with alidade and map, the room offered an unobscured view of the surrounding countryside. To the south lay North Carolina whose adjacent forests are served through reciprocal agreement by the watcher in this Virginia tower. Below us stretched the pastoral fields and forests of Virginia. The land was a crazy quilt, bisected by ribbons of road and bubbling mountain streams, shimmering like moving beads of diamonds as sun broke through the heavy clouds.

As we stared entranced by the patterns below us, Mrs. Cox stripped off her coat and prepared for the day's work. "Usually, I report from 15 to 20 fires in a season," she said: "But last spring there were 35, mostly brush fires which got out of hand. The largest burned more than 500 acres."

As Mrs. Cox talked, I became interested in the map and alidade—instruments with which forest fires are located after the smoke is sighted. As I gazed down over the forested valleys, I suddenly caught sight of a wisp of smoke on the horizon. Excitedly, I grabbed Mrs Cox's arm. She winked at me and laughed. "Oh, that's a train. It's mighty easy to spot a fire, once you learn the pattern of the land and you know exactly where the railroads cross."

Using the wisp of train smoke as a point of sight, Mrs. Cox squinted along the alidade. "Azimuth 17," she said. Then she took a small metal ruler and measured the distance between the center of the alidade and the point of sight. "Looks like it's about four and a half miles," she said as she pinpointed the smoke on the map. It was fascinating to watch her. Had the wisp of train smoke been of unexplained origin, we would have called the local fire warden and given him this information. Men would have hastened to the scene.

"Here, Mrs. Mac," interrupted Betty, as she thrust a pair of field glasses into my hand. "Look down there at the deer." Grabbing the glasses, I stared into a forest clearing below. A big antlered buck, drinking from a mountain stream, seemed close enough to touch. Suddenly, he raised his head, then darted away among the trees.

"Those glasses have a purpose other than entertaining Betty," grinned Mrs. Cox. "The glasses and the telephone on the wall are my right and left hands on the job." Then she pointed down the mountain where the telephone wires stretched like silver threads, forming a thin link with the world below. A crew of men check the line each winter, she said, cutting down the brush and seeing that the line is in good working order before the fire season begins.

"Are you ever lonely up here?" I asked. "Never," replied Mrs. Cox. "There is plenty of amusement. I particularly like the fall of the year when the fox hunters release hound packs and the sound of the chase can be heard in the tower. I also spend hours watching the herd of wild goats which frequent the bottom of the tower, and, as you can see, Betty here is wonderful company."

For two years, Mrs. Cox has watched the countryside for fires. Her husband was local fire warden for some 15 years. When he became too ill to make the daily climb to the watch tower, she took over the job. While Mr. Cox is "grounded", he is still doing his part to keep our forests green. He spends his days as a maintenance man with the State Forest Service.

"I thoroughly enjoy my job," quickly declares Mrs. Cox, when quizzed about her work. "Of course, we did have to change our daily routine a bit, but the older children are grand about doing the housework when the forest fire season begins."

The life of a fire watcher is a happy one, says Mrs. Cox. Not only do you have the satisfaction of guarding the forests from fire, but you also know that you are keeping the natural habitat of many of the woodland creatures safe and secure.

"It's the only job for me, Mrs. Mac. You see, I love this country, and I want to do my part to keep it safe."

A rugged army jeep transports Mrs. Cox on her daily eight-mile journey to the watch tower

After descending the many steps to the foot of the tower, Mrs. Cox and Betty enter the tiny cabin at its base for lunch

Lunch is prepared in the small cabin equipped with cot, stove, utensils, and emergency food

A BRIEF REPORT ON THE 1952 BIG LEVELS REFUGE HUNT

By HENRY S. MOSBY

Leader, Virginia Co-operative Wildlife Research Unit

THE SECOND hunting season on the Big Levels Refuge was held for the six days from November 17 through November 22, 1952. All game legal by state and local regulations could be taken during this period and the only special regulation in effect on the Refuge required each hunter to check in and check out at a contact station each day he hunted on the area. Three hunter contact stations were manned from 6 A.M. to 6 P.M. by personnel of the Virginia Co-operative Wildlife Research Unit. Each hunter was issued a written permit and this permit was returned to a check station at the end of his hunt, at which time game killed was inspected. The following brief report is based on information collected at these stations.

Every effort was made to obtain reliable information on the amount of time hunted, game seen, game killed and particular attention was devoted to the collection of detailed information on the deer kill. Some 4000 permits were issued; 221 legal deer, 5 turkey, and 8 bear, plus some small game were killed. Exact information as to the number of permits issued, time hunted and game seen and small game killed was not secured due to the rush of hunters through the check stations in early morning and late afternoon. For that reason, these aspects of this report must be considered as generalities rather than as exact data. It is known, for example, that many hunters were not aware that information was desired on the amount of small game seen. Likewise, it is thought that many of them did not report their kill of squirrels, grouse, rabbits and other small game.

Game Seen

Table A lists the game seen during each day of the season. It should be emphasized again that many hunters probably did not report the small game which they observed during their hunt as they did not realize that this information was desired. It is interesting to note that the number of deer observed decreased rapidly toward the latter part of the six-day period, but rose again sharply on Saturday. It was the opinion of the check station operators that the deer became increasingly wary with each day of the hunt. The opinion was ventured also that the kill would have been considerably higher if the hunter-choice day had occurred at the beginning rather than at the end of the period.

Hunters were allowed to check in at any of the three stations and check out at the station of their choice. It was believed that not all permits were turned in. A majority of the permits were returned to some check station as only a total of 118 permits was not accounted for at the end of the hunt.

Table A Game reported seen during 1952 Big Levels Hunt.

	NOVEMBER					
Game	17	18	19	20	21	22
Deer	982	873	405	185	131	841
Bear	5	6	4	0	1	9
Grouse	141	150	63	30	45	178
Squirrel	290	209	73	47	17	173

Hunter Use

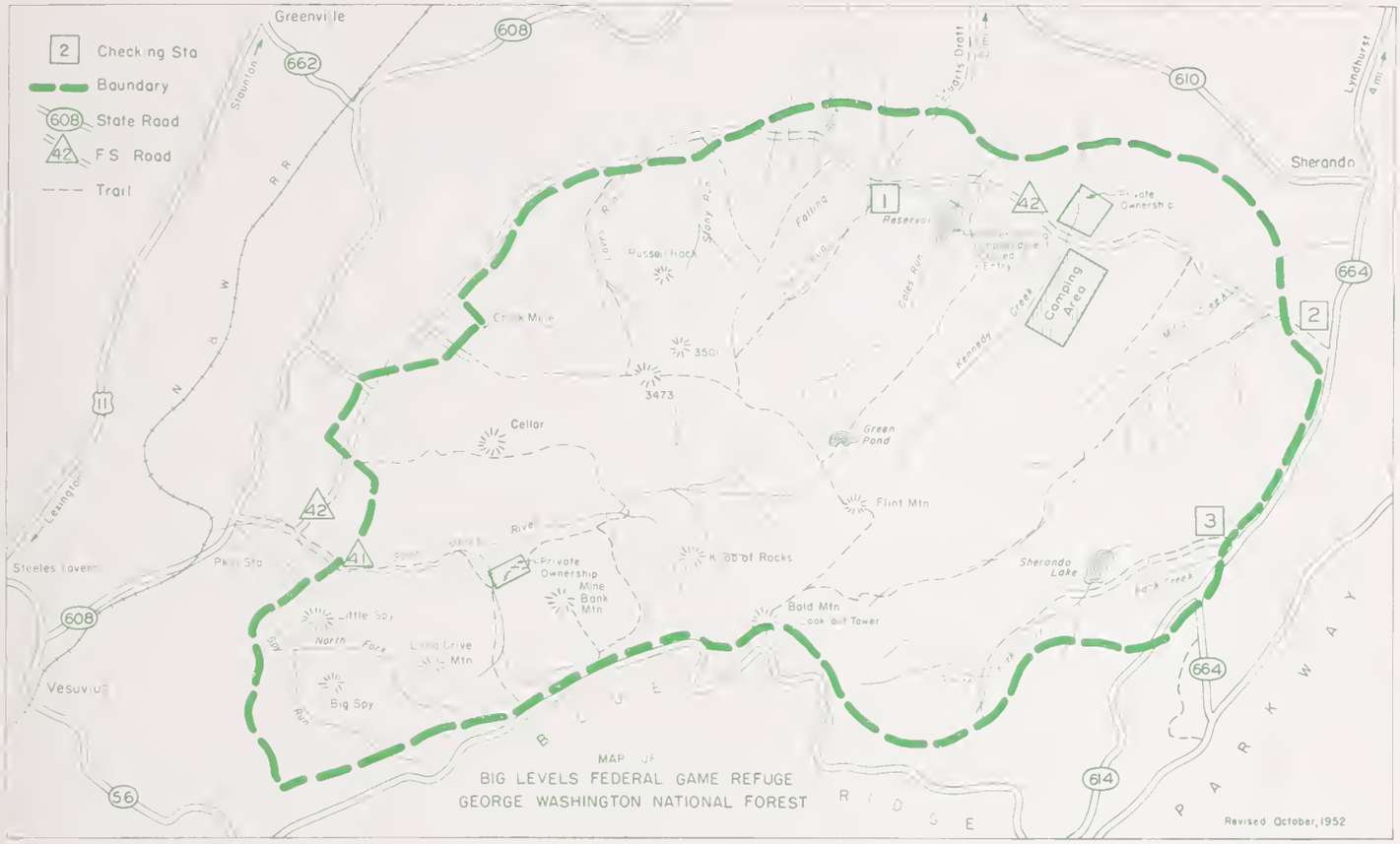
Some 4000 permits were issued during the six-day season, with the maximum number of hunters (1249) checking in on Saturday, November 22. It was anticipated that the greatest number of hunters would use Big Levels Refuge on this day as it was a holiday for many local workers and on this day hunters were permitted to kill deer of either sex.

Rain started on Wednesday afternoon, November 19, and continued through Friday, November 21. There is little question but that the weather curtailed the number of hunters and shortened the hunting period of those sportsmen who were on the Refuge during this two-and-one-half-day period of steady rain.

The average hours hunted varied from 7.5 hours on November 22 to a minimum of 4.7 on Friday, November 21. It is estimated that a total of 27,581 hunter-hours was spent on the Refuge during the six-day period.

Table B Comparison of dressed weights of deer taken in 1951 and 1952 Big Levels Hunts.

	BUCKS				DOES			
	1951		1952		1951		1952	
Age	No.	Weight	No.	Weight	No.	Weight	No.	Weight
½	12	39.0	11	45	19	38.2	23	42
1½	3	68.0	39	81	5	70.6	22	63
2½	2	91.0	40	106	6	67.3	18	71
3½	5	91.2	18	121	8	76.5	7	76
4½	3	122.3	4	144	3	77.6	3	77
5½	..	79.0	..	..	6	84.1	5	81
6½	..	..	1	114	1	76.0	1	74
7½	..	..	..	..	1	75.0	1	76



Game Killed

As pointed out previously, a special effort was made to collect information on the kill of deer, with secondary attention being given to bear, and turkey. An effort was made to collect information on the small game killed, but we seriously question that we obtained more than a partial report from the hunters as to the grouse, squirrel and rabbit kill. According to the recorded information, hunters killed 11 grouse, 41 squirrel, 7 duck, 1 raccoon and 2 bobcat during the entire week. A total of 221 deer, 5 turkey and 8 bear constituted the big game kill. The location of about one-third of the kill of big game is shown on the map.

Deer Killed

Rather detailed data were collected on the deer taken during this hunt including sex, age, weight, antler measurements in bucks, length of hind legs and notes on any abnormalities. It is proposed to subject these measurements to a detailed analysis in a later report.

All deer taken during the 1952 hunt were in excellent condition and showed fat deposits on practically all regions of the body. The heavy mast crop is credited with this good condition of the deer as compared, for example, with the deer taken during the previous year (1951) when the mast crop was poor.

It should be understood from Table B that the average weights for 1952 are for hog-dressed animals. The data collected during 1951 may not be strictly comparable to the 1952 data as sometimes no distinction was made between "field dressed" and "hog dressed" weights. Table B presents a comparison of the weights of the deer taken in 1951 (only those whose weight was recorded as "dressed") and those killed in 1952. If these data are comparable, and there is some question regarding this, the removal in 1951 of 120 deer and /or a greater mast crop in 1952 appears to have resulted in an increase in weight of the younger aged deer taken in 1952, particularly the fawns. This and other related questions will be considered in more detail in a later report.

Comments

So far as could be determined, most of the hunters using Big Levels Refuge were well satisfied and practically no uncomplimentary remarks regarding the regulations or administration of the hunt were heard. If these hunts are to be conducted in the future, it may be advisable to evolve a quicker method of checking the hunters in and out of the Refuge checking stations. The issuing of a written permit has some advantages, but it is a slow process at best. Thus, unless additional data are required on such matters as number of hours hunted, animals seen, etc., the written permit could be abolished in favor of a printed permit. Another system of operating supervised hunts could allow all hunters to enter the Refuge without checking through a station, and the supervisory personnel could obtain any desired data (game kill, hours of hunting, etc.,) at road blocks set up to check all sportsmen as they leave the Refuge.

You Can Increase Wildlife on Your Land

DO YOU want good hunting, good fishing and healthy recreation? Do you want more wildlife and fish about your premises? Do you want to see your lot or garden, farm or estate better equipped to support wild animal life? If you do—and you are legion—then you can have it. You can effect wildlife increases but it will take two things to do it: interest and work.

Say what you will about your State Game Commission and its work or the labors of farmers and sportsmen or anyone else. Nothing will be more effective than downright interest and a little work on the part of every citizen.

Yes, your Game Commission can help. Game technicians can give advice, make recommendations, even supply you with material. The game wardens can help—and do—and so can the countless other conservation workers, such as soil experts, foresters, wildlife managers. But when all is said and done, it is the individual—each and everyone of us—who must be interested and do his or her share of work if we are to have more wildlife about our premises.

You can have more wildlife about your place and have it quite easily—but you've got to make the environment more attractive to wildlife. This means more food, more cover, better nesting and breeding places, better protection.

Here are some specific, practical aids for several forms of wildlife on your premises.

Rabbits

Cottontail rabbits can be described as "omnivorous vegetarians." They eat almost anything vegetable. If rabbits can find plenty of food, such as plantain, clover, other legumes, or practically any greenery close to woodchuck dens and brush piles, and find hollow logs for cover they will most likely reproduce abundantly. Improved pastures which are not grazed too heavily are a boon to the cottontail's diet, and provide excellent nesting cover.

Brush piled over eroded gullies makes excellent cover for rabbits, as do hollow logs left lying in young growths of pine. Woodchuck dens, especially in the colder mountains, afford ideal cover for bunnies. Prunings from apple trees placed in a neat pile ontside the orchard not only provide good cover for rabbits but also afford a favorite diet of apple bark. This practice sometimes pays off economically, as well as in more rabbits. When rabbits become hard pressed for food in apple country, they will often gnaw away at young apple trees, unless tempted away by the more tender apple prunings at the side of the orchard.

Squirrels

Essentially, the needs of the squirrel differ little from other forms of wildlife. They must have plenty of food and cover. However, it is not possible to plant a den tree or an oak, hickory or gum that is already producing mast. In many areas, both in mountains and swamps, the lack of either mast or dens may limit squirrel populations.

If the need is for den trees, substitute den boxes can be built and scattered throughout the woodland. Each box should be placed from 15 to 30 feet up in selected trees.

If the woodland has plenty of dens, and winter food is the limiting factor, ears of corn can be placed upon spikes along fences or attached to tree trunks. This type of aid, good during emergencies, is valuable for only short periods of time. Perhaps the best thing one can do for squirrels is to favor nut and fruit bearing trees and shrubs in the woodland and leave den and food trees standing after cutting operations. Where there is ample sunlight, as in fencerows and on wood lot edges, trees develop broad crowns and bear large crops of fruit.

One of the best squirrel management measures for the average landowner is the scattered planting and encouragement of nut bearing trees on a long term basis.

Plant for Quail

Because it is apparent that the lack of a year-'round adequate supply of food is generally the greatest single limiting factor to the bobwhite quail in Virginia, anything done to improve food conditions should aid in increasing its numbers.

Planting is the most practical method found for improving food conditions for quail. But these plantings should be made in conjunction with good cover, such as woodlands, shrub borders and hedgerows. The type of planting used is important. By far the best quail food plant known to Virginians is bicolor lespedeza, a plant which retains its seed throughout the critical winter months.

Bicolor lespedeza plants and seeds, as well as special quail food seed mixture are made available free of charge early each spring to farmers, landowners, clubs and organizations by the Game Commission. All that is asked in return is that the seeds be planted and guarded against fire and grazing.

When odd corners of the land include an old orchard with its decrepit apple trees, the felling of one tree and the planting of wild grapes or some other usable vine beneath the spreading top will result in a "living brush-pile" which is hard to beat as cover for the bobwhite. It is fine for other small wildlife, too.

Furbearers Require Water

Generally speaking, an abundance of water, such as is found in farm ponds and natural streams, attracts the furbearers. Raccoons need hollow trees and a water-course, with oak uplands or gum lowlands, fields of corn and wild fruits, such as grapes, persimmons, elderberries, plus whatever else nature and man provide.

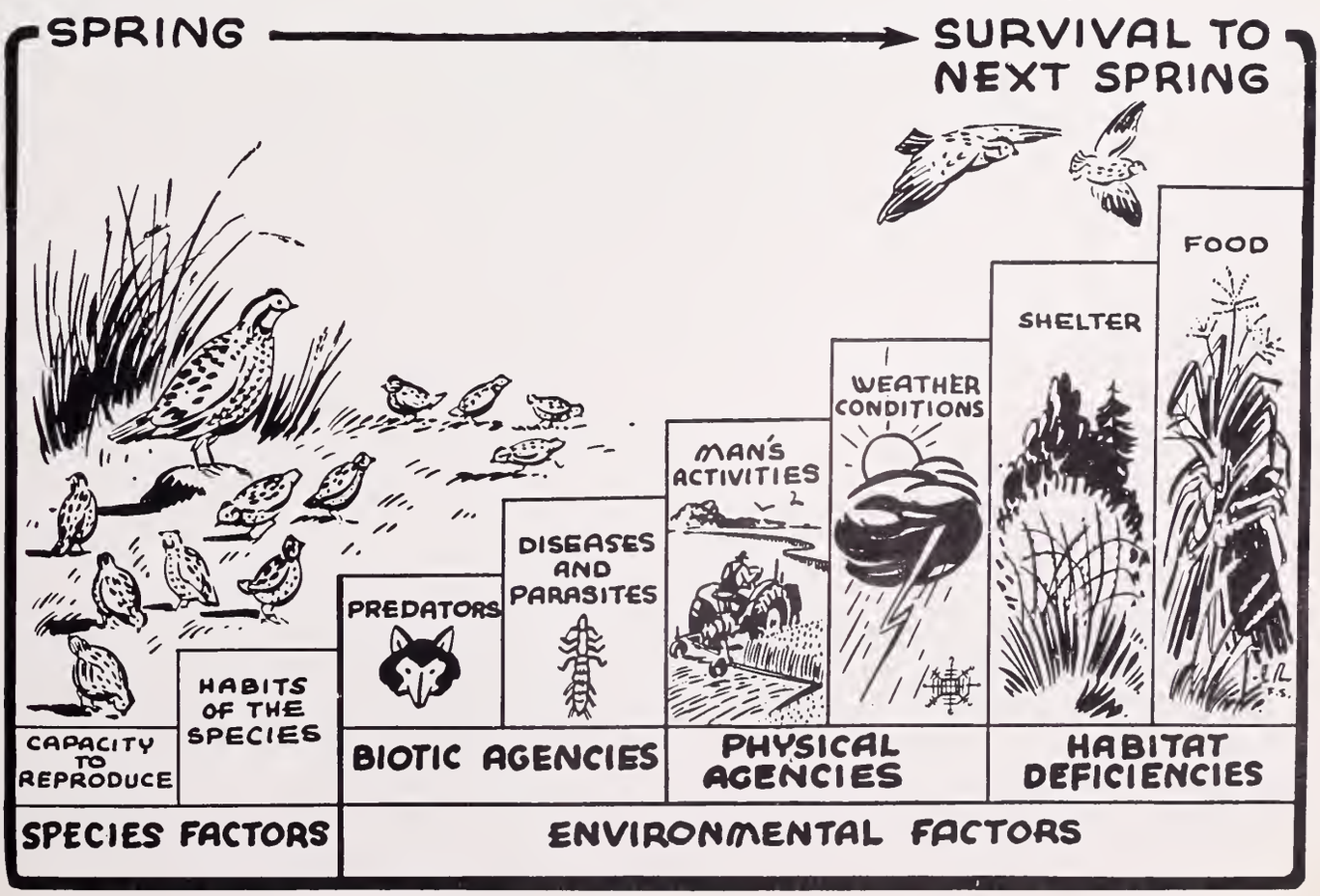
Perhaps, with furbearers, it would be of more value to discuss what not to do. First of all, don't burn swamps and marshes where the animals den and breed. Secondly, don't let domestic stock graze over marshes. Leave den trees and fruit bearing shrubs along the marsh edges. The creation of new waters in the Piedmont and mountain areas would be of great help in creating more furbearer habitat. These waters need not be large, less than an acre in size, but they should be numerous and well scattered for utmost benefit. This, of course, would require time and effort on the part of the people in these areas. However, the individual can begin such projects by constructing a farm pond. In some areas the beaver could be encouraged, for he is quite an engineer and can build an excellent pond.

Waterfowl

Just as with furbearers, there is no greater attraction for waterfowl than plenty of unpolluted water. Improvements for waterfowl can be made along the same lines as those for furbearers. In many cases, after a farm pond is completed, aquatic waterfowl food plants come in naturally.

The needs of marsh and pond-inhabiting birds are much like those of the muskrat. The biggest problem is to keep fires out of the marsh and maintain constant water levels. Where marshes tend to close in solidly

(*Continued on page 22*)



YOU CAN INCREASE WILDLIFE ON YOUR LAND

(*Continued from page 21*)

with vegetation, muskrats may help to keep small waterholes open. These openings are spotted by the ducks and are readily used.

Probably one of the most practical things that can be done for waterfowl in Virginia by the individual is the building and putting out of wood duck nesting boxes.

The decline of the beautiful wood duck during the past 10 or 15 years has been attributed much to the cutting of its den trees along marshes and streams. To overcome this handicap of our only tree-nesting duck, nesting boxes can be built and placed in trees along streams and in swamps and marshes having a lack of natural dens. These boxes should be placed from 6 to 20 feet from the ground or preferably from the water level. Further suggestions for the building of these wood duck nesting boxes can be obtained from the Commission Offices in Richmond.

Songbirds

It is safe to say that anything done to improve living conditions for game will substantially improve conditions for songbirds. Food and cover plantings for quail and rabbits will most certainly be utilized by songbirds. Even the creation of new waters and the planting of fruit bearing shrubs for squirrels and raccoons will benefit birds in general. Birds are attracted to water areas, especially clean waters. And birds, like game, find winter a critical time of the year for food. Something that cannot be done practically for game on a large scale, but that is widely practiced for birds, is artificial feeding during critical periods. This is because songbirds can be fed so easily around the home: all that is needed is a little interest, a little help. Some nutritious foods recommended in this type of feeding are suet, hemp, millet, cracked corn, chaff, chick feed, canary seed, and crumbs and other foods from the table.

Conclusions

Creating better conditions for wildlife does not mean doing a lot of extra "peculiar" things. Yet there are many specific, practical things which should be done. Some of these important things should be done anyway, purely for their agricultural value. The wise landowner will not graze his woodlots, marshes and streambanks. He will refrain from burning fencerows, pastures and lowlands. By avoiding these practices he will help to assure a continuous yield of woodland products. He will help conserve soil fertility, preserve fence wire and posts, and increase the fur and game crop and encourage all wildlife about his premises.

WHAT IS THE FATE OF OUR FALL QUAIL COVEYS?

(*Continued from page 9*)

quail exist only in relatively thin populations.

The success or failure of cover, as it contributes a suitable habitat for quail, depends wholly upon the character of the ground vegetation. Where suitable ground cover in these four types is lacking, conditions are poor; where it occurs in impenetrable tangles of great density, it is also poor. A degree of development and denseness which is intermediate in character satisfies the bobwhite excellently. Probably, the most significant factor in the utilization of these four cover types is that quail most generally use and prefer the edges of these cover types.

Most experienced upland and big game hunters have noted that most game species prefer the edges of habitat. It is in these "edges" that the types of food and cover which game needs come together, thus making the range more mobile. It is the correct interspersion of cover types, so that their edges meet, coupled with a good food supply that make up the ideal covey range.

If the covey range contains all these ingredients, then you have generally an excellent covey range each year. If the range contains all of these cover requirements and has a scant food supply, you probably will have a small or large covey, which either disappears or suffers heavy losses in the early fall.

The food supply problem can easily be remedied by placing a food patch of quail mixture, milo maize, bicolor lespedeza, or Korean lespedeza in the range where the edges of the various cover types come together. For example, this food patch could be located in the edge of a wood lot next to an ungrazed field, or in an abandoned field at the edge of a pine woods.

On every farm there are usually a number of areas on which the correct cover interspersion is found and where only a food patch is needed. Numerous studies of quail food habits have indicated that a concentrated food supply one-eighth acre in size is adequate for a large quail covey.

Landowners and sportsmen interested in creating new covey ranges or improving old ones can secure these quail food plants free. These plants are distributed by the Virginia Game Commission and can be secured, along with planting information and recommendations, by contacting either the game technician or the local game warden.

The modern trend of clean farming and increased shooting pressure in the field has taken its toll of quail and quail ranges. If our quail populations are to be maintained, then we must look toward better management of the present covey ranges and the creation of new ones.

Try a little pre-season work in the field with your landowner friend, planting quail food patches and creating new quail ranges. Such work can vastly improve the size of the season's bag and add to your pleasure of doing something constructive for game.

Field Force Notes

AUGUSTA COUNTY BEAR TALLY 105 FOR SEASON

Augusta County with a total of 105 bear killed proved a hunter's paradise during the season ending January 5 in Virginia. This total is the largest bear kill recorded in any one county in the history of the state.

The bear killed in the state during the past season number 291. West of the Blue Ridge, Rockingham reported a bear kill of 48. Other western counties with high tallies are Rockbridge with 25, Bath with 19, and Alleghany with 16.

East of the Blue Ridge, Amherst reported a total of 10 bear killed, while Nansemond hunters bagged 8, Norfolk, 5, and Nelson, 4.

MARYLAND STOCKS DEER, VIRGINIAN KILLS IT

One Lancaster County hunter is mighty grateful to the Maryland Game and Inland Fish Commission for the eight point buck he killed last December 1, at Palmer, Virginia, I. T. Quinn, executive director of the Virginian Commission, discloses.

Upon finding a Maryland tag in the ear of the buck killed, H. H. Pittman, game warden for Lancaster County, sent it to Maryland. The Maryland Game Commission reported back that the deer had been trapped at the Army Chemical Center and released in St. Mary's County, Maryland, February 8, 1952.

Quinn states that if the deer had traveled in a straight line it would have traveled a minimum of 40 miles from where it was stocked to where it was killed in Lancaster County. Assuming that it browsed around some, then there is no doubt it traveled 50 to 60 miles.

George B. Shields, chief game warden for the Maryland Game Commission, wrote Warden Pittman that they hadn't figured on the deer going so far south for the winter. Since it had, he hoped the lucky hunter would enjoy his Maryland venison.

HONKER KILL LARGEST IN 15 YEARS: SOME DAMAGE REPORTED

The largest Canada goose kill in the past 15 years was reported to the Virginia Game Commission for the waterfowl season which ended January 10. Some crop damage by heavy concentrations of geese was reported locally.

C. P. Gilchrist and Capt. Ed Doughty shown looking over goose damage done to broccoli fields in Northampton County

Waterfowl hunters over the state generally concur that more geese were spotted this season than in many previous years.

In conjunction with the heavy geese concentrations came a few reports of crop damage. Waterfowl biologist C. P. Gilchrist and Captain Ed. Doughty, game warden for Northampton County, report extensive damage to broccoli fields.

To overcome the problem of geese damage, broccoli leaves. used during packing operations, were scattered over the fields to attract the geese away from growing plants.

FIVE-YEAR NATIONAL FOREST PROGRAM PLANNED

Supervisors, staff members, and technicians of the Thomas Jefferson and George Washington National Forests convened in Richmond January 15 and 16 to revise methods and formulate a five-year program for national forest development. Among those attending the meeting were A. H. Anderson, supervisor of the George Washington National Forest, and George Mullin, supervisor of the Thomas Jefferson National Forest.

Ways and means of augmenting present *Virginia Plan* of forest-game management were also discussed in broad terms.

1952-53 QUAIL HUNTING POOR

"Probably the most disappointed hunter in the state during the past season was the quail hunter," declares I. T. Quinn, executive director of the Virginia Commission of Game and Inland Fisheries.

Surveys made by Commission staff members during the summer and fall of 1952 indicated a larger crop of quail than in previous years. However, it is believed, said Quinn, that the long drought last summer greatly reduced the potential quail population.

Quinn pointed out that the quail hunter today faces a problem nonexistent 10 or 15 years ago. Then the hunter found the bobwhite quail in the fields and open farmland. Today, the quail has a tendency to seek food and shelter in the woodland.

This new tendency of the bobwhite quail is attributed to the unprecedented demand for timber and other forest products, resulting in the cutting of many trees throughout the quail belt. The clearing of timber has permitted sunshine to reach the forest floor and stimulate the growth of game foods. Quail have abandoned the open fields and are seeking shelter in the safety of the forsest.

BROMFIELD RECEIVES AUDUBON MEDAL

Award of the Audubon Medal for distinguished service in the conservation of natural resources to LOUIS BROMFIELD was made last December at the annual dinner of the National Audubon Society by Ludlow Griscom, chairman of the board.

The citation states that at his Malabar Farm in Ohio, Mr. Bromfield "has demonstrated a pattern for man's living in harmony with nature on a sound ecological basis." Mr. Griscom made special reference to Mr. Bromfield's work in behalf of soil conservation and stated that his writings and lectures have "influenced the thinking of millions of people."

Mr. Bromfield concluded his response after receiving the award with this statement: "Instead of a wasted and ruined countryside, crossed by polluted streams, devoid of wildlife or beauty, it is possible to make of the whole nation a vast and wonderful park in the midst of which lives and works man himself surrounded by a kind of natural paradise. All this is far less of a dream than it might appear. It is merely common sense. More than that it is a plan that is profitable, not only in terms of dollars and cents but in a thousand other ways."

DOWNING, MAN OF THE YEAR IN AGRICULTURE

Thomas V. Downing, assistant state supervisor of vocational agriculture, has been named the 1952 Man of the Year in Service to Virginia Agriculture by the *Progressive Farmer* magazine. He had previously been honored in 1949 as Virginia Man of of the Year in Forestry.

COMMISSION BEGINS COLLECTION OF WILDLIFE SPECIMENS

With the arrival at the Commission's Richmond offices of the first shipment of mounted specimens several weeks ago, a much needed program of collecting and mounting specimens of Virginia's game, fish and other forms of wildlife has gotten underway.

Arthur B. Fuller, noted taxidermist, shown preparing a bald eagle for the Commission's collection

Executive Director I. T. Quinn approved a moderate program of taxidermy work over the next several years, giving Educational Chief J. J. Shomon the go-ahead with the program of preparing specimens, which will be stored in the Commission's Hearing Room.

Accordingly, the services of Arthur B. Fuller, Jamesville, Virginia, professional taxidermist, were secured and a number of bird skins and mounted specimens have already been delivered.

Fuller is a professional taxidermist of the highest caliber, having been chief taxidermist for the Cleveland Museum of Natural History before his retirement. He has made a number of trips to the Arctic and to Africa for collection purposes. He also has been supplying specimens for the State Museum in Richmond.

The Commission hopes to secure specimens of all native wild birds and mammals, and to use these specimens in conservation education.

SHOEMAKER RETIRES FROM WILDLIFE CONSERVATION

Carl D. Shoemaker voluntarily retired as Conservation Director of the National Wildlife Federation last December 31. Along with "Ding" Darling, famous cartoonist, and others, he organized the Federation in 1936. He first became identified with the wildlife conservation movement in July of 1915. In 1928 and 1929, he represented the states of Oregon and Washington in the national capital in the interest of wildlife legislation. Among these bills was the Norbeck-Andersen refuge program act. In 1930, upon establishment of the Special Committee on Conservation of Wildlife Resources in the United States Senate, he was made its special investigator. Two years later, he was selected as secretary and retained this position until the committee was abolished under the Congressional Reorganization Act in 1948.

He prepared and followed through Congress the Duck Stamp Act, the Pittman-Robertson Act, the Dingell-Johnson Act, and innumerable other conservation measures designed for the betterment and advancement of the wildlife movement in the United States.

Mr. Shoemaker is a member of the Federal Water Pollution Control Advisory Board, having been appointed by President Truman when the Act first went into effect four years ago.

In 1951, he received from the Wildlife Society the Aldo Leopold Memorial Award and Medal, conservation's most prized honor. He is a member of more than 30 societies and organizations whose objectives are concerned with the conservation of water, soil, trees and wildlife. He is succeeded as Conservation Director by Charles H. Callison, whom he selected two years ago as his assistant.

He will continue as editor of the Conservation News Service for the Natural Resources Council of America and will carry out his term of office as General Counsel for the International Association of Game, Fish and Conservation Commissioners, as well as continuing as a conservation consultant for the National Federation.

NATURE CONSERVANCY

"How to preserve an area" is the title of a bulletin issued by the Nature Conservancy as a service to landowners who want to preserve natural conditions on their property. It discusses the problems of assuring continuing protection for an area that is to be preserved.

The Conservancy stresses three essential requirements for assuring preservation of a nature reserve: (1) management under a stated policy of preservation, (2) assurance of continuing control by a permanent organization, and (3) assurance of continuing maintenance funds from endowment or other source. It discusses the value of buffer areas and the need for careful planning to assure perpetual protection of a proposed nature reserve.

Copies may be obtained from the Nature Conservancy, 1840 Mintwood Place, N. W., Washington 9, D. C.

MINER SANCTUARY CANADA'S SECOND GREATEST ATTRACTION

The home and Bird Sanctuary of the late Jack Miner, Kingsville, Ontario, has now been rated the second greatest tourist attraction in the Dominion of Canada. Niagara Falls being the greatest and was followed by the Quintuplets, thence Jack Miner's, but now since the Quintuplets have become older, Jack Miner's activities have stepped up into second place. Each year since Jack Miner died, tourists have increased doubly over the previous year until this fall, 4300 autos were there in one day.

STATE JUNIOR FISHING KING AND QUEEN CROWNED

Seven-year-old Donald Hampton, of Galax, and eleven-year-old Julia Henshaw, of Charlottesville, have been crowned State Junior Better Fishing King and Queen of Virginia for 1952. The young royalty were crowned on the basis of having caught the heaviest fish of any boy and girl in the state during 1952, as determined by the National Boy and Girl Better Fishing Rodeo officials.

Donald Hampton (top) and Julia Henshaw (bottom), the 1952 Better Fishing King and Queen for Virginia

This annual event was enjoyed in 448 cities and towns throughout the country and Alaska last summer. It is sponsored by Better Fishing, Inc., of Chicago, a non-profit, non-commercial organization to educate youth in the fundamentals of fishing, sportsmanship and conservation—an important phase of education sorely neglected in our schools.

The state champs were presented Coronation Certificates by the Governors of their respective states. They will reign until qualified successors are selected from this year's Better Fishing Program winners.

CONFLICTING COMMENTS

The average angler is probably confused by the many conflicting statements he gets from the professional fisheries worker. The angler will hear that fewer regulations are needed, and that more regulations are necessary. He will be told that stocking is ineffective, and that we must stock more heavily. He will be expected to believe that commercial fishing is beneficial, and that it is harmful.

Actually, these observations are not contradictory. They point out the simple fact that we can't generalize, and that fish conservation is a complicated science.

We had overregulated with respect to pan-fish in general, and with regard to game fish in some states. But we may need more restrictions on our trout fishing. Many of our trout waters are overfished. Where we rely on catchable-size hatchery fish the creel limit must be low. A limit catch of 10 or 15 fish costs more to produce than a fish and game department receives for a year's license fee. In some northern areas the catching of predatory warmwater game fish might need to be reduced too.

Much of our stocking has been a waste of time and money. But, in numerous waters we would have no trout fishing if we didn't stock catchable-size fish just before and during the trout fishing season. In isolated instances stocking with warmwater fish is also helpful.

In waters where "weed" fish are abundant, commercial fishing for these species can be expected to benefit the angler. But, in instances where both the meat fisherman and the angler vie for the same species, the meat fishing can be expected to reduce the catch of the sport fisherman.

In a country as big and varied as the United States, we simply can't generalize. Measures which will help fishing in some areas will harm it in others. There is no simple nationwide cure-all for our fishing ills.

Wildlife Questions and Answers

Ques.: What is meant when it is said that birds are "molting?"

Ans.: Birds change their plumage, as a rule, every year. This process is called molting. In growing birds there may be several molts before the final mature feathering stage is completed. Normally, however, adult birds have a complete change of their feathers only once a year.

Ques.: Why do otters always swim upstream when hunting for fish?

Ans.: It is not certain that otters always swim upstream when hunting for fish, but it is believed that they generally do so because their prey, the fish, nearly always face the current of a stream while resting or waiting for food. The otter can more easily approach them from behind.

Ques.: How many deer were killed last hunting season by bow hunters on the Big Levels Refuge in Augusta County? How long was the bow season there?

Ans.: Bow hunters took two deer last season from Big Levels Refuge. The season lasted from November 10 through November 15.

Ques.: What county in Virginia leads the other counties in sales of hunting and fishing licenses?

Ans.: Tazewell County. Tazewell County has led all other counties in the state in sales of hunting and fishing licenses for the last several years.

Ques.: We are trying to save some money this year and would like to plan our fishing trips accordingly. Could you tell us how much it costs to fish on Commission controlled ponds?

Ans.: No charge, other than boat rental where boats are provided by a caretaker.

Ques.: How is the age of a fish determined?

Ans.: By the number of rings on its scales.

Ques.: To what extent will the new hatchery in Smyth County increase the smallmouth bass production after it is completed?

Ans.: Smallmouth production will be more than doubled.

Ques.: What seems to be the greatest cause of hunting accidents in Virginia?

Ans.: Inexperience and carelessness and lack of forethought.

Ques.: Is there any way of removing the odor from clothing after being sprayed by a skunk?

Ans.: It is said that the smoke from a green pine needle smudge will help remove skunk odor.

Ques.: How many points did the buck have that won first place in the Big Game Trophy Contest last year, and where was it killed?

Ans.: The buck had 11 points and was killed by Tom Mace of Stauntan. It was killed in Augusta County.

Ques.: Why doesn't the Game Commission stock pike or pickerel in some of our eastern Virginia waters? Many fishermen consider this fish to be of excellent food and sporting value.

Ans.: The popularity of the chain pickerel or pike has not until just recently been very high. Therefore its propagation by the Commission was not considered. If the Commission were to attempt to raise pike in its hatcheries, some of our other species would have to be sacrificed, such as bass, crappie and bream. Also, pike is extremely difficult to propagate. It is a voracious feeder and devours any other fish its own size or smaller. It is believed that populations of pickerel can be increased naturally to sufficient numbers by wise management practices.

"She's been putting on airs ever since she heard the female of the species is more dangerous than the male"

Ques.: Why is it that in some western counties you have to pay a dollar for a damage stamp before you can hunt?

Ans.: A number of counties, by local legislation, have assessed a dollar deer and bear damage stamp which is required to be purchased by all big game hunters in the county for the purpose of reimbursing such farmers and orchard growers for losses sustained from depredations of deer and bear.

Ques.: Is the Shenandoah National Park included in the 1,500,000 acres of national forest lands in Virginia?

Ans.: No, the national park and the national forests are separate and distinct areas. The national parks are administered by the National Park Service, a bureau in the Department of the Interior, while the national forests are managed by the U. S. Forest Service, a bureau in the Department of Agriculture.

Ques.: Is it true that fishing on Sunday is prohibited in some counties in Virginia?

Ans.: Sunday fishing is prohibited in counties of Alleghany, Bath, Bland, Botetourt (except James River and Carvin's Cave), Craig, Giles (except Mountain Lake and New River), Highland, Rockbridge, Surry (except Sunken Meadow Lake in Surry County), and in Silver Lake in Rockingham County.

Ques.: Is it true that a raccoon will not eat anything before it has washed it?

Ans.: No. Ordinarily a raccoon will wash a crayfish, frog, or fish before eating, but many items eaten are caught far from water and the raccoon just doesn't bother to wash them.

Ques.: What Virginia mammals can fly like a bird?

Ans.: The bats, only. Flying squirrels can glide, but not fly.

Ques.: What use is made of the money collected from the sale of national forest stamps?

Ans.: The funds collected from the sale of these stamps are used only for the development, stocking and protection of wildlife on the two national forests in Virginia.

Ques.: I've heard that a fox can climb a tree; is this true?

Ans.: Red foxes, no. Gray foxes, yes.

Ques.: What type of food can be used on an angleworm bed?

Ans.: Decomposed leaves can be used along with corn meal, coffee grounds or ground beef suet. Some of the worm raising experts recommend sugar in some cheap form.

Ques.: Do bees, wasps, hornets, and yellowjackets sting only once?

Ans.: The bee stings only once because it loses its stinger. Wasps, hornets, and yellowjackets are repeaters.

Ques.: Where can I obtain a copy of the book entitled *The Wild Turkey in Virginia: Its Status, Life History, and Management* by H. S. Mosby and C. O. Handley?

Ans.: This publication has been out of print for some time and to our knowledge no copies are available from any source whatsoever.

Ques.: Are moles blind?

Ans.: A mole can tell daylight from darkness, but little more than that. Their eyes are no bigger than pinheads.

Ques.: Are muskrats known to travel any distance overland?

Ans.: Yes, muskrats make frequent excursions, even going considerable distance overland. If they find newly constructed ponds to their liking, they immediately take up residence.

Ques.: Is the golden trout merely another name given to the rainbow?

Ans.: No, the golden trout is a separate species.

HOW TO PLANT
BICOLOR LESPEDEZA

Commission photos by Kesteloo

A. Bicolor shoots should be heeled in until you are ready to start planting

B. Prepare the ground by plowing furrows along the field edge where you are going to plant

C. Place bicolor shoots along one side of the plowed furrow at intervals of two feet

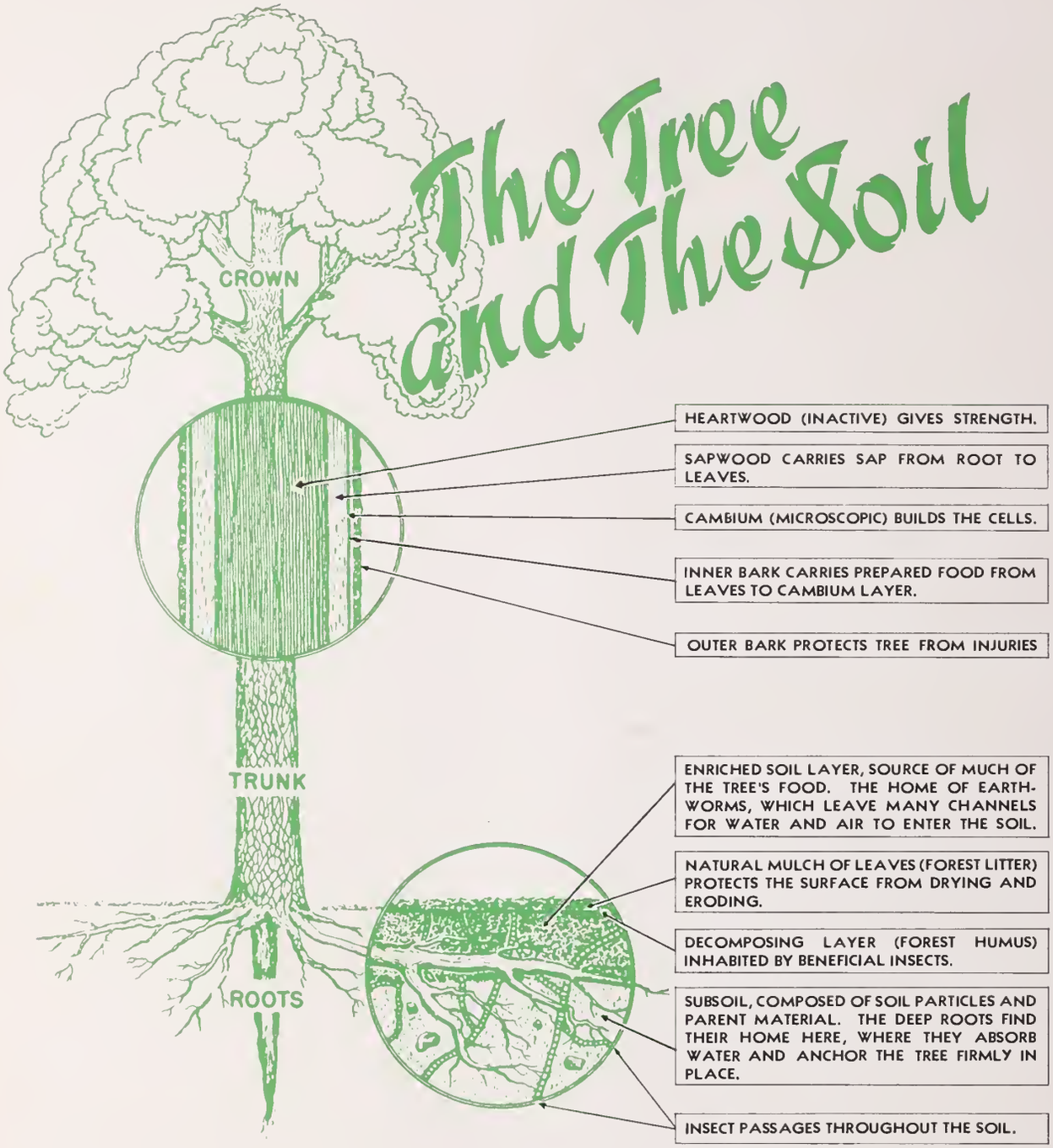
D. Cover roots by plowing another furrow throwing soil over plant roots

E. Small plantings do not require a tractor. A grub hoe is sufficient, and soil packing is done with your heel

F. Packing soil around plants in large plantings is done with the rear wheel of the tractor

G. A three-year-old stand of bicolor lespedeza, which has been producing seed and feeding quail for two years

The Tree and The Soil


CROWN
TRUNK
ROOTS
HEARTWOOD (INACTIVE) GIVES STRENGTH.
SAPWOOD CARRIES SAP FROM ROOT TO LEAVES.
CAMBIUM (MICROSCOPIC) BUILDS THE CELLS.
INNER BARK CARRIES PREPARED FOOD FROM LEAVES TO CAMBIUM LAYER.
OUTER BARK PROTECTS TREE FROM INJURIES
ENRICHED SOIL LAYER, SOURCE OF MUCH OF THE TREE'S FOOD. THE HOME OF EARTHWORMS, WHICH LEAVE MANY CHANNELS FOR WATER AND AIR TO ENTER THE SOIL.
NATURAL MULCH OF LEAVES (FOREST LITTER) PROTECTS THE SURFACE FROM DRYING AND ERODING.
DECOMPOSING LAYER (FOREST HUMUS) INHABITED BY BENEFICIAL INSECTS.
SUBSOIL, COMPOSED OF SOIL PARTICLES AND PARENT MATERIAL. THE DEEP ROOTS FIND THEIR HOME HERE, WHERE THEY ABSORB WATER AND ANCHOR THE TREE FIRMLY IN PLACE.
INSECT PASSAGES THROUGHOUT THE SOIL.

The buds, root tips, and cambium layer are the growing parts of the tree. Water containing a small quantity of minerals in solution is absorbed by the roots, carried up through the sapwood to the leaves, and there combined with carbon from the air to make food. This food is carried by the inner bark to all growing parts of the tree, even down to the root tips.

Natural forest soil is loose and mellow. It is permeated by rodent burrows, and angleworm and insect passages. These allow air and moisture ready access to the feeding roots. The roots in turn help hold soil in place, thus helping to prevent erosion.

Loose and mellow forest soils also allow rain water and water from melting snows to seep into underground reservoirs. This water is later released into springs, small streams, rivers, and lakes.

A.G.R.-SCS-SPARTINBURG, S. C. -DECEMBER 1952